

PART SPEC

DESCRIZIONE: INVERTER, SIC 1803

11/11/2019 11:58:11 AM
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SECTION : VD R&D

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DRAWN MYUNG SOO NA	7202		DOC. NO.: EN44-00041ACB REF. NO.:
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PART SPEC				
REV.	DATE	CONTENTS	DRAWN	APPROVED
00	2001. 11. 08	initial release	M S NA	B J . KVAK
01	2002. 05. 06	REV SI ON BY ECO NO BN0200203CB (CHANGED CAP : SMD MLCC --> AMMO CAP) , ADD ADHESIVE	M S NA	B J . KVAK
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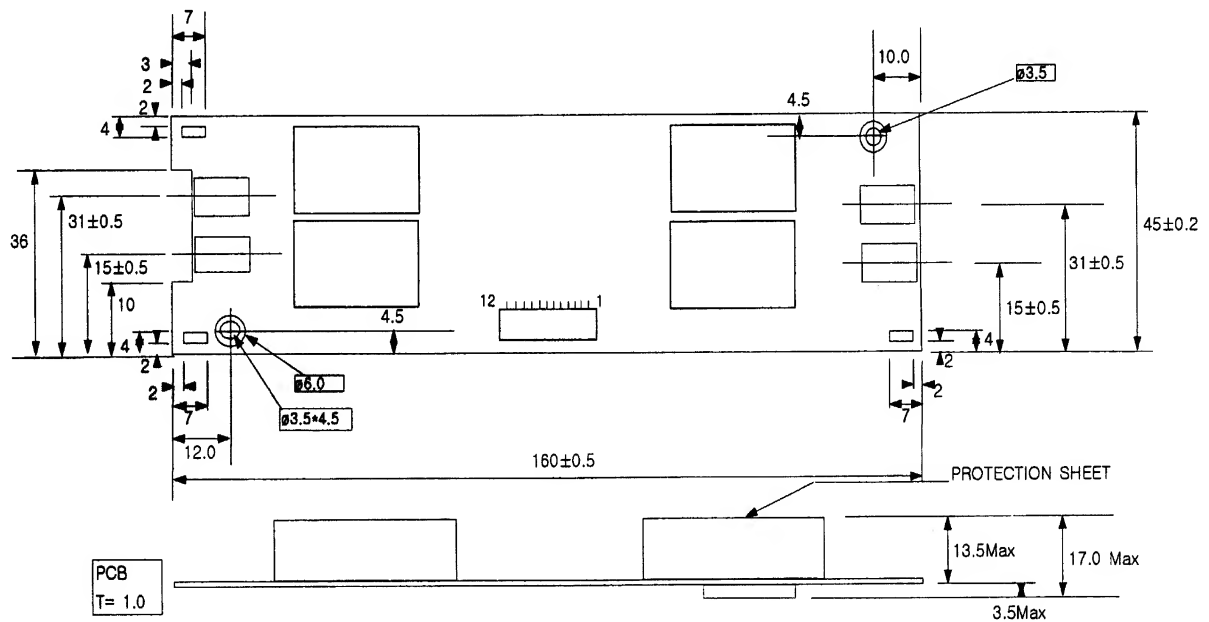
PART SPEC

1.0 SCOPE

- 1.1 THIS DOCUMENT DEFINES FOR INVERTER, **SI C1803**, 11.5~14.5V, 48KHz
- 1.2 USAGE : BACK LIGHT 4 LAMP CCFL DRIVER INVERTER FOR ES17NS
- 1.3 TYPE OF PACKAGE :
- 1.4 COATING

2.0 RELATED DOCUMENTS

3.0 DIMENSIONS



4.0 REQUIREMENTS

4.1 MAXIMUM RATINGS

SYMBOL	PARAMETER	RATING	UNIT
V_{in1}	input voltage1	11.5~14.5	V
V_{in2}	input voltage2	4.9 ~ 5.1	V
T_{opr}	operating temperature	0 ~ +50	°C
T_{stg}	storage temperature	-30 ~ +80	°C
H_{op}	operating/storage humidity	10~90	%RH

4.2 CONTROL SIGNAL

PI N NO.	SYMBOL	STATUS	ACTION	REMARKS
CN1 #4	BKLT-ON	HIGH	LAMP(CCFL)-ON	2.4~5.25V
		LOW	LAMP(CCFL)-OFF	0.8V MAX

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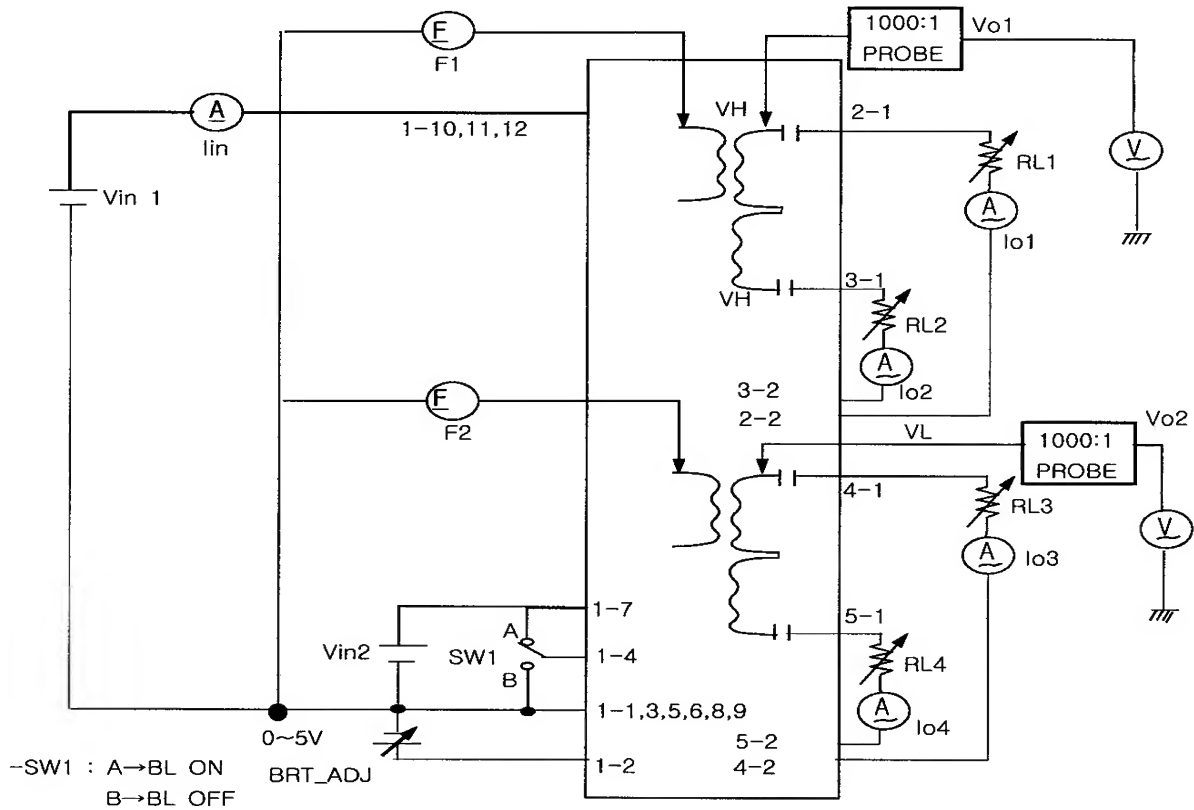
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4.3 TEST CIRCUIT



4.4 INPUT/OUTPUT CHARACTERISTICS

ITEM	SYMBOL	CONDITION				SPECIFICATION			UNIT
		Vin1(V) (DC IN)	Vin2(V)	BRT-ADJ	RL(Ω)	MIN	TYP	MAX	
OUTPUT CURRENT	Io1, 2(max)	11.5~14.5	5	0V	120±0.5	6.1	6.7	7.2	mA rms
	Io1, 2(min)	11.5~14.5	5	5V	120±0.5	1.5	2.5	4.0	
	Io3, 4(max)	11.5~14.5	5	0V	120±0.5	6.1	6.7	7.3	
	Io3, 4(min)	11.5~14.52	5	5V	120±0.5	1.5	2.5	4.0	
INPUT CURRENT	Iin	14	5	0V	120±0.5		1.9	2.2	ADC
DIMMING FREQUENCY	F(1)	14	5	0V	120±0.5	525	535	545	□
FREQUENCY	F(1)	14	5	0V	120±0.5	41	48	55	□
	F(2)	14	5	0V	120±0.5	41	48	55	

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5.0 FUNCTIONAL PIN DESCRIPTION

5.1 CN1 CONNECTOR 53261-1290(MOLEX)

PIN NO	SYMBOL	REMARK
2	BRT_ADJ	0 ~ 5V
1, 3, 5, 6, 8, 9	GND	GND
4	BL ON/OFF	CCFL Drive SIGNAL(Active HIGH)
7	VDD	5V
10, 11, 12	DC IN	DC INPUT Power(14V)

5.2 CN2 CONNECTOR SM02B-BH-1TB(JST)

PIN NO	SYMBOL	REMARK
1	HOT	HIGH 1
2	COLD	LOW

5.3 CN3 CONNECTOR : SM02B-BH-1TB(JST)

PIN NO	SYMBOL	REMARK
1	HOT	HIGH 1
4	COLD	LOW

5.4 CN4 CONNECTOR : SM02B-BH-1TB(JST)

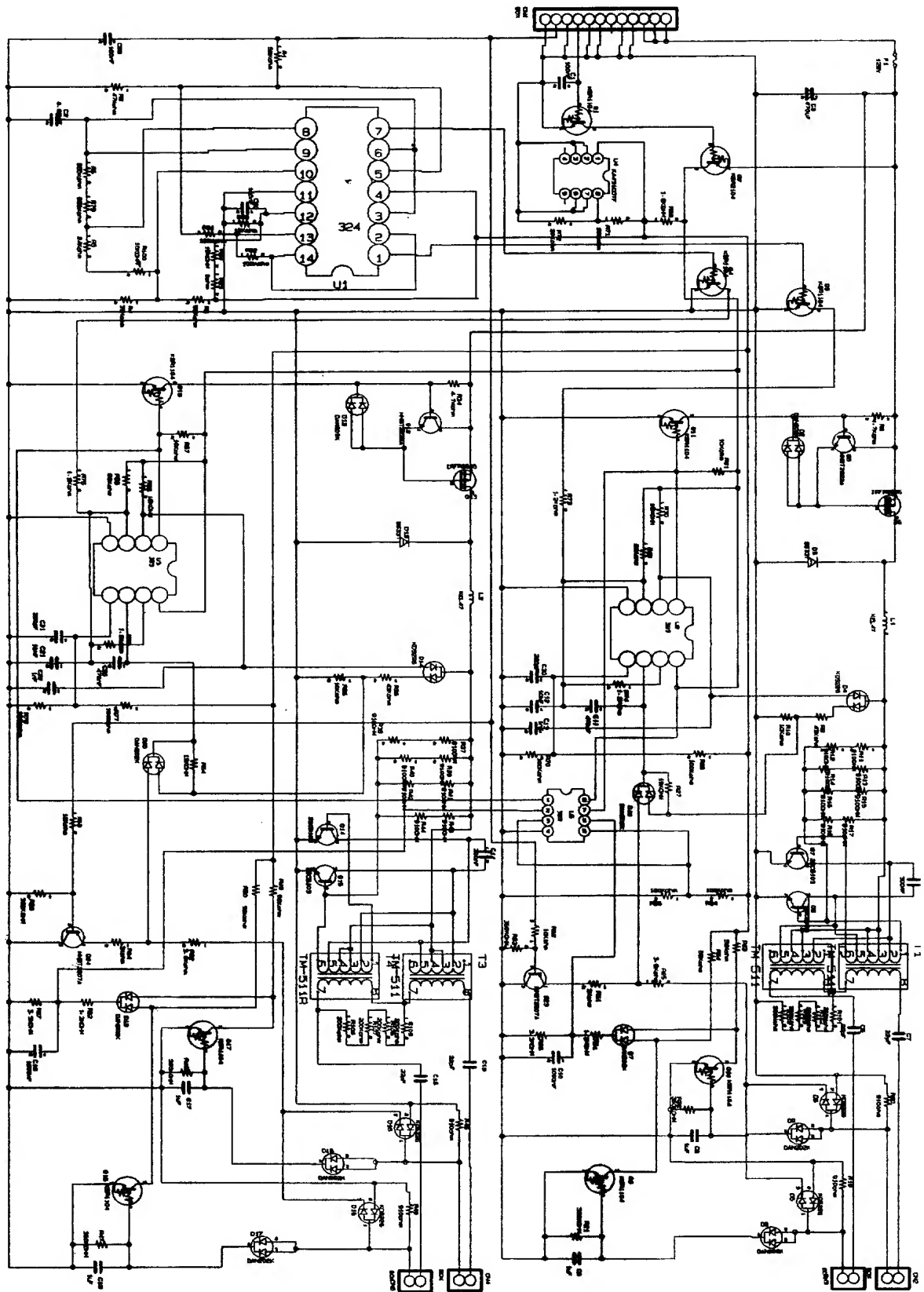
PIN NO	SYMBOL	REMARK
1	HOT	HIGH 1
4	COLD	LOW

5.5 CN5 CONNECTOR : SM02B-BH-1TB(JST)

PIN NO	SYMBOL	REMARK
1	HOT	HIGH 1
4	COLD	LOW

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6.0 INTERNAL CIRCUIT DIAGRAM



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7.0 PARTS LIST

SYMBOL	NAME	1st		2nd	
		TYPE NO	MAKER	TYPE NO	MAKER
U4	IC	KA431CD	FAIRCHILD	TL431CD	SGS
U1	"	KA324	FAIRCHILD	BA10324	ROHM
		KIA324	KEC	LM324	T.I
U2,3,5	IC	KA393	FAIRCHILD	BA10393	ROHM
		KIA393	KEC	LM358	T.I
Q1,3,4,9,10,11,16,17, Q18	TR	KRC104S	KEC	KSR1104	SEC
Q2	"	KRA104S	KEC	KSR2104	SEC
Q5,12	"	KST2222A	FAIRCHILD	KTN2222AS	KEC
Q23,24	"	KST2907A	FAIRCHILD	KTN2907AS	KEC
Q6,13	TR	IRFR5505	FAIRCHILD	SFR9034	F.C
	"	2SJ246	HITACHI		
Q7,8,14,15	TR	2SC5103	ROHM	2SD1803	SANYO
	"	KTC5103D	KEC		
D2,7,8,9,10,12,17,18, 19,20	DIODE	KDS184	KEC	DAN202K	ROHM
		SDS2838	AUK		
D3,13	DIODE	SS33&SS34	G.I	SK33/SK34	PANJIT
D22	"	KDS181	KEC	DAP202K	ROHM
D4,5,6,14,15,16	"	KDS226	KEC	DAN217	ROHM
	"	SDS7000	AUK		
C3	C- ELEC	LXZ470uF/25V	SAMYUNG		
C5,14	FILM	MPPS2A304K	SUNGHO	MMX- E- 2A304K	HITACHI
C6,7,15,16	C- CERA	C4520SL3FD220K	TDK	HCSL3F220K	NETRONTech
C2	MLCC	CL21B681KBN	SEMCO		
C13,22	"	CL21C102JBN	"		
C1,23,50	"	CL21C104KBN			
C12,21	"	CL21C103KBN			
C8,9,10,17,18,19	MLCC	CL21F105ZAN	"		
C11,20	"	CL21B474KON			
C30,31	"	CL21B221JBN			
R27,30,54,56,94	CHIP- R	RC2012J153	SEMCO		
R2	"	RC2012J473	"		
R4	CHIP- R	RC2012J393	SEMCO		
R73,74,75,76	"	RC2012J122	"		
R5	"	RC2012J243	"		
R6,79	"	RC2012J684	"		
R19,20,45,46,11~18, 37~44	"	RC3216J911	"		
R10,36,62,65,31,57,95	"	RC2012J103	"		
R9,35	"	RC2012J433	"		

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SYMBOL	NAME	1st		2nd	
		TYPE NO	MAKER	TYPE NO	MAKER
R21,22,47,48,63,66	"	RC2012J364			
R1,3,23,24,49,50,55	"	RC2012J563	"	"	
R81,82	"	RC2012J135	"	"	
R86,87	"	RC2012J335	"	"	
R25,52	"	RC2012J362	"	"	
R69	"	RC3026J182	"	"	
R28,70,77,78,84,85,91,92	"	RC2012J104	"	"	
R71,72		RC2012J203			
R101~108		RC3026J204			
R61,64		RC2012J302			
R100	VR	10□			
T1,4	TRANS	TM511R	NAMYANG	TM511R	DAESUNG
	"	TM511R	KYUNGIN		
T2,3	TRANS	TM511	NAMYANG	TM511	DAESUNG
	"	TM511	KYUNGIN		
L1,2	COIL	KEL47	KYUNGIN	KEL47	NAMYANG
F1	FUSE	SSQ3	BEL	451003	LITTEL
CN1	CONNECTOR	12505WR- 12A00	YEONHO	53261- 1290	MOLEX
CN2,3,4,5	CONNECTOR	35001WR- 02P	YEONHO	SM02B- BHS	JST
PCB	PCB	SIC1803 REV.02	YOUNGEUN	SIC1803 REV02	KIJOO
ADHESIVE	ADHESIVE	KE40RTV	SHINETSU		

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8.0 RELIABILITY SPECIFICATION

NO	ITEM	CONDITION AND METHOD
1	HIGH TEMPERATURE STORAGE TEST	TEMP. ; 70 °C DURATION 500 hrs
2	LOWTEMPERATURE STORAGE TEST	TEMP. ; 40 °C DURATION 500 hrs
3	HIGH TEMPERATURE HIGH HUMIDITY STORAGE TEST	TEMP. ; 40 °C , HUMIDITY: 95%RH DURATION 500 hrs
4	HIGH TEMPERATURE HIGH HUMIDITY OPERATION TEST	TEMP. ; 40 °C , HUMIDITY: 95%RH DURATION 1000 hrs
5	THERMAL SHOCK TEST	TEMP; - 30 °C ↔ 70 °C, 250 CYCLE (30 MINUTE), (30 MINUTE)
6	VIBRATION TEST	AMPLITUDE; 1.5mm; FREQUENCY; 10~55Hz, POSITION; THREE PERPENDICULAR PLANES, DURATION; 1000 hrs
7	HIGH TEMPERATURE OPERATION TEST	TEMP; 50 °C DURATION; 72 hrs
8	LOWTEMPERATURE OPERATION TEST	TEMP; 0 °C DURATION; 72 hrs

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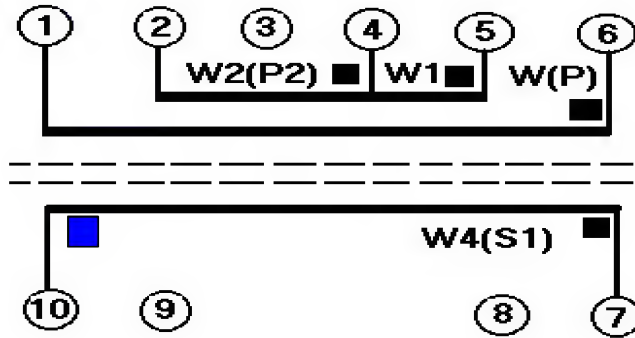
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9.0 DETAIL SPECIFICATION FOR KEY PARTS

9.1 TRANS (TM511, TM511R)

9.1.1 WINDING SPEC & ELECTRICAL CHARACTERISTICS



SYMBOL & WINDING	WIRE	TURNS	INDUCTANCE	CONDITION
V1 (#5-#1)	2UEW0.30□	8	#5-#2: 41.0uH ± 10% 0.6uH ref. 300nH ± 10%	AT 1KHZ 1Vrms
V2 (#4-#2)	2UEW0.30□	8		
V3 (#6-#1)	2UEW0.15□	2		
V4 (#7-#10)	FUEW0.04□	1440(288*5)		

9.1.2 MATERIAL LIST (TM511, TM511R)

NO	COMPONENT	MANUFACTURE COMPONENT	NAME OF MATERIAL	MANUFACTURER OF MATERIAL	UL FILE NO
1	CORE	SAMSUNG CORNING CO., LTD	SL-2 EEA 17.7A		
2	BOBBIN	JO KWANG ELECTRONICS CO., LTD	(94V-0) SB EE18-2 LCP UL	SUMITOMO CHEMICAL CO., LTD	E 54705 (M)
3	WIRE	DONG YANG ELECTRONICS IND CO., LTD	2 EW0.15Ø (AVG #35)		E 102761(S)
4			2 UEW0.30Ø (AVG #29)		
5			FUEW0.04Ø (AVG #14)		
6	INSULATION TAPE	DUCK SUNG TAPE CO., LTD (Cat. No. DTS-204)	POLYESTER FILM TAPE 0.025 mm X 13.5 mm		E 105147(S)
7	CORE FIXING TAPE		POLYESTER FILM TAPE 0.025 mm X 5.0 mm		
8	INSULATOR	SKC LTD	PETP FILM (SR55) 0.10 mm(T) MIN		E 74359 (S)
9	WAX	MICRO WAX 180	MOBIL or ESSO		



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9. 2 DETAIL MATERIAL LIST FOR KEY PARTS (SAFETY)

SYMBOL	NAME	TYPE NO.	MANUFACTURER	DESCRIPTION
FI	FUSE	451003	LITTELFUSE INC	UL FILE NO :E10480 CSA FILE NO :LR29862
		SSQ3	BEL	UL FILE NO :E20624 CSA FILE NO :LR39772
PCB	PRINTED WIRING BOARD	FR- 4	KJ OO	UL FILE NO :E111636
			YOUNG EUN ELECTRONICS	UL FILE NO:E173507
CN1	CONNECTOR	53261- 1290	MOLEX	NYLON 4/6 UL94V- 0
	"	12505WR- 12A00	YEONHO	"
CN2,3 CN4,5	CONNECTOR	SM02B- BHS	JST	PA46 UL94V- 0
	"	35001WR- 02P	YEONHO	"
	INSULATOR	PC	TEIJ IN CHEMICALS	UL FILE NO:E50075(M)
T1,4	TRANSFORMER	TM- 511R	DAISUNG TELECOMMUNICATIONS	CLASS A (105 de.C) SEE TRANS SPEC
			NAMYANG ELECTRONICS	CLASS A (105 de.C) SEE TRANS SPEC
			KYUNGIN ELECTRONICS	CLASS A (105 de.C) SEE TRANS SPEC
			DAISHIN DENKEN	CLASS A (105 de.C) SEE TRANS SPEC
T2,3	TRANSFORMER	TM- 511	DAISUNG TELECOMMUNICATIONS	CLASS A (105 de.C) SEE TRANS SPEC
			NAMYANG ELECTRONICS	CLASS A (105 de.C) SEE TRANS SPEC
			KYUNGIN ELECTRONICS	CLASS A (105 de.C) SEE TRANS SPEC
			DAISHIN DENKEN	CLASS A (105 de.C) SEE TRANS SPEC

10. 0 PACKING REQUIREMENTS

BULK

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SAMSUNG P/ N	VENDOR #1 P/ N	VENDOR #2 P/ N	VENDOR #3 P/ N	VENDOR #4 P/ N
BN44- 00041A	SI C1803			
VENDOR #1	SAMSUNG ELECTRO MECHANICS CO , LTD			
VENDOR #2				
VENDOR #3				
VENDOR #4				
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